

What is Claimed:

1. A layered magnet comprising:
 - a rare earth magnet having a magnetic field; and
 - superposed upon the rare earth magnet, a layer of ferritic magnet bonded thereto;
 - the magnetic field of the layered magnet in the direction outward from and normal to the layer of ferritic magnet being substantially more uniform than the magnetic field in said direction exhibited by the rare earth magnet alone.
2. The layered magnet of claim 1 further comprising a bonding layer.
3. The layered magnet of claim 1 further comprising an additional layer of magnetic material.
4. The layered magnet of claim 3 wherein the additional layer of magnetic material comprises a ferritic magnet, a rare earth magnet, or combinations thereof.
5. The layered magnet of claim 1 further comprising an additional layer of non-magnetic material.
6. The layered magnet of claim 1 wherein said rare earth magnet comprises a neodymium-iron-boron magnet.

7. The layered magnet of claim 1 wherein said ferritic magnet, said rare earth magnet, or both said ferritic magnet and said rare earth magnet comprise a binder.

8. A magnetic roll comprising

a cylindrical core adapted for use with a reprographics apparatus,

superposed upon the cylindrical core, at least one layered magnet;

the layered magnet comprising a rare earth magnet having a magnetic field, and

superposed upon the rare earth magnet, a layer of ferritic magnetic material bonded thereto;

the magnetic field of the layered magnet in the direction outward from and normal to the layer of ferritic magnet being substantially more uniform than the magnetic field in said direction exhibited by the rare earth magnet alone.

9. The magnetic roll of claim 8 further comprising a bonding layer.

10. The magnetic roll of claim 8 further comprising an additional layer of magnetic material.

11. The magnetic roll of claim 10 wherein said additional layer of magnetic material comprises a ferritic magnet, a rare earth magnet, or combinations thereof.

12. The magnetic roll of claim 8 wherein said rare earth magnet comprises a neodymium-iron-boron magnet.

13. The magnetic roll of claim 8 wherein said ferritic magnet, said rare earth magnet, or both said ferritic magnet and said rare earth magnet comprise a binder.

14. A method for increasing the magnetic field strength of a ferritic magnet comprising:

providing a ferritic magnet having a magnetic field,

superposing upon the ferritic magnet, a layer of rare earth magnet and bonding said layer thereto to form a layered magnet,

the magnetic field strength of the layered magnet in the direction outward from and normal to the layer of rare earth magnet being substantially greater than the magnetic field strength in said direction exhibited by the ferritic magnet alone.

15. The method of claim 14 wherein the ferritic magnet and the rare earth magnet are superposed by co-extrusion, compression molding, calendering, injection molding, or combinations thereof..

16. The method of claim 14 further comprising the step of superposing upon said layered magnet an additional layer of magnetic material bonded thereto.

17. The method of claim 16 wherein said additional layer comprises a ferritic magnetic material, a rare earth magnetic material, or combinations thereof.

18. The method of claim 14 further comprising the step of superposing upon said layered magnet an additional layer of non-magnetic material.

19. The method of claim 14 wherein said rare earth magnet comprises a neodymium-iron-boron magnet.

20. The method of claim 14 wherein said ferritic magnet, said rare earth magnet, or both said ferritic magnet and said rare earth magnet comprise a binder.

21. A method for increasing the magnetic field strength of a magnetic roll comprising:

providing a ferritic magnet having a magnetic field,

superposing upon the ferritic magnet, a layer of rare earth magnet and bonding said layer thereto to form a layered magnet,

providing a cylindrical core adapted for use with a reprographics apparatus,

superposing upon said cylindrical core, said layered magnet,

the magnetic field strength of the magnetic roll in the direction outward from and normal to the layer of ferritic magnet being substantially greater than the magnetic field strength in said direction exhibited by the ferritic magnet alone.

22. The method of claim 21 further comprising providing a bonding layer between said ferritic magnet and said rare earth magnet.

23. The method of claim 21 further comprising the step of superposing upon said layered magnet an additional layer of magnetic material.
24. The method of claim 23 wherein said additional layer comprises a ferritic magnet material, a rare earth magnet material, or combinations thereof.
25. The method of claim 21 further comprising the step of superposing upon said layered magnet an additional layer of non-magnetic material.
26. The method of claim 21 wherein said rare earth magnet comprises a neodymium-iron-boron magnet.
27. The method of claim 21 wherein said ferritic magnet, said rare earth magnet, or both said ferritic magnet and said rare earth magnet comprise a binder.
28. The method of claim 21 further comprising the step of superposing upon said cylindrical core said rare earth magnet.
29. A method for increasing the magnetic field uniformity of a rare earth magnet comprising:
providing a rare earth magnet having a magnetic field,

superposing upon the rare earth magnet, a layer of ferritic magnet and bonding said layer thereto to form at least one layered magnet,

the magnetic field of the layered magnet in the direction outward from and normal to the layer of ferritic magnet being substantially more uniform than the magnetic field in said direction exhibited by the rare earth magnet alone.

30. The method of claim 29 further comprising the step of providing a bonding layer between said ferritic magnet and said rare earth magnet.

31. The method of claim 29 further comprising the step of superposing upon said layered magnet an additional layer of magnetic material.

32. The method of claim 31 wherein said additional layer comprises a ferritic magnet material, a rare earth magnet material, or combinations thereof.

33. The method of claim 29 further comprising the step of superposing upon said layered magnet an additional layer of non-magnetic material.

34. The method of claim 29 wherein said rare earth magnet comprises a neodymium-iron-boron magnet.

35. The method of claim 29 wherein said ferritic magnet, said rare earth magnet, or both said ferritic magnet and said rare earth magnet comprise a binder.

36. The method of claim 29 further comprising the step of superposing said rare earth magnet upon said cylindrical core.

37. A method for increasing the magnetic field uniformity of a magnetic roll comprising:

providing a rare earth magnet having a magnetic field,

superposing upon the rare earth magnet, a layer of ferritic magnet and bonding said layer thereto to form a layered magnet,

providing a cylindrical core adapted for use with a reprographics apparatus,

superposing upon said cylindrical core, said layered magnet,

the magnetic field of the magnetic roll in the direction outward from and normal to the layer of ferritic magnet being substantially more uniform than the magnetic field in said direction exhibited by the rare earth magnet alone.

38. The method of claim 37 further comprising the step of providing a bonding layer between said ferritic magnet and said rare earth magnet.

39. The method of claim 37 further comprising the step of superposing upon said layered magnet an additional layer of magnetic material.

40. The method of claim 39 wherein said additional layer comprises a ferritic magnet material, a rare earth magnet material, or combinations thereof.

41. The method of claim 37 further comprising the step of superposing upon said layered magnet an additional layer of non-magnetic material.

42. The method of claim 37 wherein said rare earth magnet comprises a neodymium-iron-boron magnet.

43. The method of claim 37 wherein said ferritic magnet, said rare earth magnet, or both said ferritic magnet and said rare earth magnet comprise a binder.